

IN THE CLAIMS:

Claim 1 (original) An isolated nucleic acid molecule for controlling floral development in orchid, which nucleic acid molecule is selected from the group consisting of:

- (a) a nucleic acid molecule, *PeMADS2*, comprising the nucleotide sequence of SEQ ID NO: 1 and the anti-sense strand thereof;
- (b) a nucleic acid molecule, *PeMADS3*, comprising the nucleotide sequence of SEQ ID NO: 3 and the anti-sense strand thereof;
- (c) a nucleic acid molecule, *PeMADS4*, comprising the nucleotide sequence of SEQ ID NO: 5 and the anti-sense strand thereof;
- (d) a nucleic acid molecule, *PeMADS5*, comprising the nucleotide sequence of SEQ ID NO: 7 and the anti-sense strand thereof;
- (e) one or more nucleic acid molecules hybridizing with the complement strand of any one of the nucleic acid molecules as defined in (a), (b), (c) and (d) under stringent hybridization conditions; and
- (f) one or more nucleic acid molecules comprising the degeneration sequences of any one of the nucleotide sequences of SEQ ID NO: 1, 3, 5, and 7.

Claim 2 (original) The nucleic acid molecule according to Claim 1, which is capable of controlling floral development in *Phalaenopsis spp.*.

Claim 3 (original) The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS2* is capable of controlling sepal development.

Claim 4 (original) The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS3* is capable of controlling lip development.

Claim 5 (original) The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS4* is capable of controlling lip and column developments.

Claim 6 (original) The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS5* is capable of controlling petal and stamen developments.

Claim 7 (original) A vector comprising the nucleic acid molecule according to Claim 1.

Claim 8 (currently amended) The vector according to Claim 7, which is a shuttle vector that is capable of expressing the nucleic acid molecule ~~according to Claim 1~~ in a plant.

Claim 9 (original) The vector according to Claim 7 comprising an inducible promoter.

Claim 10 (original) A kit for controlling floral development in orchid, which comprises the vector according to Claim 7.

Claim 11 (original) A cell transformed with the vector according to Claim 7.

Claim 12 (currently amended) A transgenic orchid comprising cells which contain the nucleic acid molecule according to Claim 1 ~~in the cells~~.

Claim 13 (currently amended) A transgenic orchid ~~according to Claim 12, which is transformed with the vector according to Claim 7~~ produced by transforming an orchid with the vector of claim 7.

Claim 14 (original) The cell according to Claim 11, wherein the cell is a prokaryote cell.

Claim 15 (original) The cell according to Claim 11, wherein the cell is an orchid cell.

Claim 16 (original) The cell according to Claim 11, wherein the cell is a *Phalaenopsis* spp. cell.

Claim 17 (original) A method for producing a transformed orchid cell comprising introducing the nucleic acid molecule according to Claim 1 into an orchid cell to obtain the orchid transformed cell.

Claim 18 (original) The method according to Claim 17, wherein the orchid is a *Phalaenopsis* spp.

Claim 19 (original) The method according to Claim 17, wherein the orchid cell is derived from a protocorm-like body.

Claim 20 (original) The method according to Claim 17, wherein introducing the nucleic acid molecule into the orchid cell is by a gene gun.

Claim 21 (original) A protocorn-like body comprising the nucleic acid molecule according to Claim 1.

Claim 22 (original) A method for producing a transgenic orchid comprising the steps of:

- (a) introducing the nucleic acid molecule according to Claim 1 into an orchid cell to obtain an orchid transformed cell; and
- (b) regenerating the orchid transformed cell to obtain the transgenic orchid plant.

Claim 23 (original) The method according to Claim 22, wherein the orchid plant is a *Phalaenopsis* spp.

Claim 24 (original) The method according to Claim 22, wherein the orchid cell is derived from a protocorn-like body.

Claim 25 (original) The method according to Claim 22, wherein the nucleic acid molecule is introduced into the orchid cell in step (a) by a gene gun.

Claim 26 (currently amended) A transgenic orchid produced according to the method according to Claim ~~21~~ 22.

Claim 27 (original) A protein encoded by the nucleic acid molecule according to Claim 1.

Claim 28 (original) A protein for controlling floral development in orchid, which is selected from the group consisting of PeMADS2 having a sequence of SEQ ID NO:2, PeMADS3 having a sequence of SEQ ID NO:4, PeMADS4 having a sequence of SEQ ID NO:6, and PeMADS5 having a sequence of SEQ ID NO:8.

Claim 29 (currently amended) The A method comprising :(a) providing the protein according to Claim 27, which is used and (b) using the protein for controlling floral development in *Phalaenopsis spp.*

Claim 30 (currently amended) A method for controlling floral development in orchid, which comprises: (a) providing an orchid plant with a nucleic acid molecule according to claim 1, said nucleic acid molecule encoding a protein that is expressed in said plant in an amount; and (b) changing the amount of the protein according to Claim 27 in a the plant.

Claim 31 (currently amended) The method according to Claim 30, wherein the amount of the protein ~~according to Claim 27~~ is changed by inducing, inhibiting and deleting the expression of the nucleic acid molecule ~~according to Claim 1~~.

Claim 32 (currently amended) The method according to Claim 30, wherein the amount of the protein ~~was~~ is changed by increasing or decreasing the ploid of the

nucleic acid molecule of ~~Claim 1~~ in at least one cell of the plant.

Claim 33 (currently amended) The method according to Claim 30, ~~which~~ wherein the amount of the protein ~~was~~ is changed by using a gene gun to introduce the nucleic acid molecule of ~~Claim 1~~ into the cell.

Claim 34 (original) The method according to Claim 33, wherein the cell is derived from a protocorn-like body.

Claim 35 (currently amended) The method according to Claim 30, wherein the amount of the protein ~~comprises~~ ~~was~~ is changed by introducing an anti-sense strand of the nucleic acid molecule into the cell.